
Commercial name: **Cut flock from PA and PES**

1. Transport and storage

Flock should be stored in closed polyethylene bags under the following climate conditions:

Temperature $20 \pm 10^{\circ}\text{C}$, relative air humidity $55 \pm 25\%$. During transport these conditions should be maintained as well. Short deviations from these climate conditions have no influence, provided that the flock can recover at standard climate (rel. air humidity $60 \pm 2\%$, temperature $22 \pm 2^{\circ}\text{C}$). Longer influence of temperatures below 5°C diminishes the flock quality. The lower the temperature and the longer it lasts, the higher is the damage to the conductivity. After extremely low temperatures the flock may not be recoverable by climatisation.

2. Inspection of incoming goods

The inspection of incoming goods should be done at standard climate and after conditioning of at least 2 hours at standard climate (specimen quantity ca. 50 g). Only then the measured values can coincide with the values in the inspection certificate. Alternatively the flock may be inspected under working conditions, if these deviate from standard climate. Anyhow, in this case the specification of the desired values must be adapted accordingly. There is a special information sheet for the testing methods of the inspection certificate.

3. Processing

The processability of flock depends strongly on the climate conditions in the **flocking zone**. The flocking zone is the area in which the flock moves between the electrode and the substrate. In most cases there is an air-conditioned cabin around the flocking zone. This cabin includes the flock hopper and the re-circulation. Additionally there must be enough air exchange in the flocking zone. Immisions from adhesive and substrate must be eliminated continuously. Especially solvent vapors and vapors from hot EPDM, these can make the flock treatment sticky and lower the conductivity substantially.

The climate is crucial during flocking since the flock won't jump properly when the air is too dry, while too much humidity makes it sticky. Optimum conditions:

- PA tannic free: (Type classification: 3. place digit 7, e.g. type 2072): rel. air humidity $45\% \pm 5\%$, $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$
- PES and PA all other types: rel. air humidity $60\% \pm 10\%$, $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$

4. Recycling and disposal

Flock which doesn't hit the adhesive can be re-circulated manually or automatically. Doing this the flock should be passed through a sieve in order to remove agglomerations. If the climate inside the flocking zone is correct and no immisions damaged the flock it can be re-circulated many times. From time to time the conductivity should be measured and the re-circulation should be stopped when the conductivity is too low. The decrease of conductivity is caused by

1. too dry air
2. solvent vapors and other immisions
3. mechanical abrasion of the flock treatment by the hopper and the re-circulation
4. jumping in the electrostatic field.

The causes 1.-3. can be minimized by optimizing the flocking machine, whereas the cause 4 can't be influenced. Flock out of the pre-cleaning can be re-circulated directly, provided that the pre-cleaning is done within the air-conditioned flocking zone. Flock from the final cleaning after the drying oven can't be used any more for flocking. Flock with too low conductivity can be retreated, provided that it is clean and the quantity is high enough. Dirty and unusable flock can be disposed of like domestic waste.

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5. IMDS - Water content of flock

Water is an intrinsic part of flock. The mentioned amount of water in the IMDS system is only the equilibrium water content at 60% relative air humidity. This amount is in full accordance with the IMDS recommendations.

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